IN THE CLAIMS:

1-17. (Canceled)

18. (New) A fusion protein for producing an immune response in a vertebrate, which fusion protein comprises:

(a) a first proteinaceous portion comprising a peptide sequence analogous to all or part of the GnRH peptide as set forth in SEQ ID NO: 13, wherein the activity of said GnRH peptide is to be inhibited within the vertebrate, and which proteinaceous portion by itself is incapable of eliciting an effective immunoinhibitory response in said vertebrate; connected to

(b) a second proteinaceous portion comprising a polypeptide sequence analogous to all or part of the BHV-1 gD protein as set forth in SEQ ID NO: 19;

wherein when the vertebrate is vaccinated with an effective amount of the fusion protein, said vertebrate recognizes the first proteinaceous portion (a) and produces an immune response capable of inhibiting the activity of said GnRH peptide within the vertebrate.

19. (New) The fusion protein according to claim 18, wherein said first proteinaceous portion comprises multiple copies of said peptide sequence.

20. (New) The fusion protein according to claim 19, wherein said first proteinaceous portion comprises SEQ ID NO: 15.

21. (New) The fusion protein according to claim 18, wherein said second proteinaceous portion comprises SEQ ID NO: 29 or SEQ ID NO: 35.

22. (New) A polynucleotide molecule comprising a nucleotide sequence encoding the fusion protein according to any one of claims 18-21.

23. (New) A vector comprising a polynucleotide molecule according to claim 22.

24. (New) A vector according to claim 23, suitable for *in vitro* expression of the fusion protein.

25. (New) A vector according to claim 23, suitable for *in vivo* expression of the fusion protein.

26. (New) A transformed cell comprising a polynucleotide molecule which comprises a nucleotide sequence coding for the fusion protein according to any one of claims 18-21.

27. (New) A dual-function vaccine for inhibiting GnRH activity in cattle and for protecting cattle against BHV-1 infection, which comprises the fusion protein according to claim 18 in an amount effective to inhibit GnRH activity and protect cattle against BHV-1 infection, along with a carrier acceptable for pharmaceutical or veterinary use.

28. (New) A method for inhibiting sexual characteristics in a cow and for protecting the cow against BHV-1 infection which comprises immunizing the cow with an amount of the vaccine according to claim 27, which amount is effective to inhibit sexual characteristics and protect against BHV-1 infection.

29. (New) A method for inhibiting the activity of a peptide in a vertebrate which comprises immunizing the vertebrate with an amount of the vaccine according to claim 27, which amount is effective to inhibit the activity of the peptide.

30. (New) A dual-function vaccine for inhibiting GnRH activity in cattle and for protecting cattle against BHV-1 infection, which comprises the vector according to claim 23 in an amount effective to inhibit GnRH activity and protect cattle against BHV-1 infection, along with a carrier acceptable for pharmaceutical or veterinary use.

31. (New) A method for inhibiting sexual characteristics in a cow and for protecting the cow against BHV-1 infection which comprises immunizing the cow with an amount of the

vaccine according to claim 30, which amount is effective to inhibit sexual characteristics and protect against BHV-1 infection.

32. (New) A method for inhibiting the activity of a peptide in a vertebrate which comprises immunizing the vertebrate with an amount of the vaccine according to claim 30, which amount is effective to inhibit the activity of the peptide.

33. (New) A dual-function vaccine for inhibiting GnRH activity in cattle and for protecting cattle against BHV-1 infection, which comprises the transformed cell according to claim 26 in an amount effective to inhibit GnRH activity and protect cattle against BHV-1 infection, along with a carrier acceptable for pharmaceutical or veterinary use.

34. (New) A method for inhibiting sexual characteristics in a cow and for protecting the cow against BHV-1 infection which comprises immunizing the cow with an amount of the vaccine according to claim 33, which amount is effective to inhibit sexual characteristics and protect against BHV-1 infection.

35. (New) A method for inhibiting the activity of a peptide in a vertebrate which comprises immunizing the vertebrate with an amount of the vaccine according to claim 33, which amount is effective to inhibit the activity of the peptide.

a smaller peptide comprising one or several GnRH sequence, that would give sufficient exposure of the peptide to evoke an immune response strong enough to inhibit the function of GnRH *in vivo*.

In sum, Applicants respectfully submit that the cited references, alone or in combination, do not teach or suggest making a GnRH-gD conjugate, as presently claimed. Furthermore, one skilled in the art would not have had a reasonable expectation of success that such a conjugate, if made, would be capable of provoking an immune response that inhibits the function of GnRH *in vivo*, as presently claimed.

In view of the foregoing amendments and remarks, it is firmly believed that the subject application is in condition for allowance, which action is earnestly solicited.

Respectfully submitted,

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